

CLAIMS

What I claim as my invention is:

1. A computer-implemented method and system to allow an end user, who need not be trained as a database administrator or as an application programmer, to write a highly declarative specification of a master-detail application of a relational database, using sentences containing his own natural language words and phrases and place-holders, to directly run the specification as though it were a program, and to directly and automatically obtain explanations of the results.
2. The method of claim 1, further comprising a notation in which an end user can specify an application over a database using his own natural-language words and phrases in syllogisms containing place holders, including master-detail syllogisms containing indented conclusion lines, and in which an end user can write tables of data with heading lines containing his own natural-language words and phrases and place holders.
3. The method of claim 1, further comprising a step in which the method and system maintain a correspondence between (a) a sentence containing one or more place-holders, the sentence having been written by the end user using natural language words and phrases of his own choosing, and (b) an internal notation consisting of a logical predicate in which variables correspond respectively to the place holders, and in which the predicate name corresponds to the rest of the sentence; the correspondence being maintained automatically by the method without necessarily requiring the separate maintenance of any natural language dictionary or grammar.

4. The method of claim 1, further comprising a step in which a master-detail syllogism is compiled into a hierarchical data structure containing variables.

5. The method of claim 1, further comprising a method of directly executing a highly declarative specification of a master-detail application of a relational database, such that an answer to an input question is a master-detail hierarchy that logically follows from the specification and the database.

6. The method of claim 1, further comprising a method of directly and automatically providing explanations of results obtained from highly declarative end user specifications of master-detail applications of relational databases.

7. The method of claim 1, further comprising steps such that, the range of applications that an end user can specify is not limited by a logical schema that must be pre-written, and maintained, by a Database Administrator.

8. The method of claim 1, further comprising steps such that the range of applications that an end user can specify is not limited by components that must be written and maintained by an application programmer.

9. The method of claim 1, further comprising steps such that, parts or all of the direct execution method for, and of the direct explanation method for, a highly declarative end user specification of a master-detail application of relational databases, are automatically compiled, for efficiency, into the database access language SQL.

10. The method of claim 1, further comprising steps such that, the input master-detail and other information is made available to the direct execution method,

and to the direct explanation method, in the notation known as XML, or in the notation known as HTML, or in other similar tagged notation.

11. The method of claim 1, further comprising steps such that, the input table information is made available to the direct execution method, and to the direct explanation method, in the notation known as XML, or in the notation known as HTML, or in other similar tagged notation.

12. The method of claim 1, further comprising steps such that, the output master-detail and other information is made available from the direct execution method, and from the direct explanation method, in the notation known as XML, or in the notation known as HTML, or in other similar tagged notation.

13. The method of claim 1, further comprising steps such that, the output master-detail and other information is made available from the direct execution method, and from the direct explanation method, in end user readable displays containing nested master-detail tables.